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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,421	12/14/2005	Tsunechisa Takahashi	282145US90PCT	5315
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			CULBERT, ROBERTS P	
			ART UNIT	PAPER NUMBER
			1763	
			NOTIFICATION DATE	DELIVERY MODE
			08/10/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/560,421	Applicant(s) TAKAHASHI ET AL.	
	Examiner Roberts Culbert	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/14/05, 2/6/07</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Drawings

Figures 1A-1E should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 2557269A. ('269)

Regarding Claim 1, DE '269 teaches an etching solution comprising a solution of cupric chloride and at least one triazole type compound added to the cupric chloride solution.

Regarding Claim 2, DE '269 teach at least one triazole type compound is selected from the group consisting of benzotriazole (BTA), benzotriazole-COOH and tolyl triazole.

Regarding Claim 3 and 4, DE '269 teach a concentration of the at least one triazole type compound within the range 1000-3000 ppm or 1200-2500 ppm.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 8-14, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (APA) (alternatively JP 2003-306784A and JP 06-057453A) in view of DE 2557269A. ('269)

Regarding Claims 1 and 10, applicant's admitted prior art (APA) teach a method of etching exposed parts of a copper layer, wherein parts of the copper layer are coated with an etching resist having a predetermined pattern, wherein the parts of the copper layer not coated with the etching resist are exposed using an etching solution comprising applying to parts of the copper layer exposed between traces of etching resist pattern, an etching solution comprising cupric chloride or ferric chloride and at least one side-etching inhibiting compound including thiazoles or triazoles and a well known nonionic or anionic surfactant to etch exposed parts of the copper layer. (See Paragraphs 2-7 of applicant's specification or in the alternative JP 2003-306784A and JP 06-057453A)

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Claims 1 and 10 differ from the prior art only by specifying a triazole compound is added to a cupric chloride etching composition as a side-etching inhibiting compound:

However, the combination is well known as show by DE '269 in order to control side etching.

Regarding Claims 2 and 12, DE '269 teaches the at least one triazole type compound is selected from the group consisting of benzotriazole (BTA), benzotriazole-COOH and tolyl triazole.

Regarding Claims 3, 4, 13, and 14, DE '269 teach a concentration of the at least one triazole type compound is 1000-3000 ppm or 1200-2500 ppm.

Regarding Claims 5 and 11, JP 2003-306784 teaches at least one amphoteric surface active agent or at least one anionic surface active agent is added as a dispersant.

Regarding Claims 8, 9 17 and 18, do not expressly teach the concentration of at least one anionic surface active agent is 2000-11000 ppm or 4000-9700 ppm. However, it would have been obvious to one of ordinary skill in the art to provide a concentration within applicant's broadly recited range in order to provide suitable dispersion of dissolved residue without excessive foaming as the amount of surfactant for a process may be determined by one of ordinary skill in the art by routine experimentation and without creative effort.

Regarding Claim 19, applicant's admitted prior art in view of DE '269 teach a printed wiring board having a circuit pattern.

Regarding the limitations that *"on the side wall of the circuit pattern, there are formed non-uniform irregularities having a shape and size that depend upon the concentration of the at least one triazole type compound added to the etching solution, the concentration of the surface active agent, or spray pressure of the etching solution"*. The claimed formation of irregularities is simply the result of performing the claimed etching method. Since the Prior Art process is the same as the claimed method, the limitations would necessarily occur, or else result from essential limitations not recited in the claims.

Regarding Claims 20-22, similarly, the recited claim limitations such as depth of surface depressions are simply the result of performing the claimed etching method. Since the Prior Art process is the same as the claimed method, the limitations would necessarily occur, or else result from essential limitations not recited in the claims.

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Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (APA) (alternatively JP 2003-306784A and JP 06-057453A) in view of DE 2557269A. ('269) as applied above, and in further view of JP 07-066528 A.

Regarding Claims 7 and 16, as applied above, applicant's admitted prior art in view of DE '269 teach the method of the invention substantially as claimed, but do not expressly teach an nonionic or anionic surface active agent selected from the group consisting of: polyoxyethylene alky ether, alkyl polyoxyethylene ether, polyoxyethylene, polyoxyethylene polyoxypropylene, polyoxypropylene glycol, polyoxyethylene polyoxypropylene glycol ether, polypropylene glycol polyethylene glycol ether, etc.

However, the recited surfactants are simply well known anionic and nonionic surfactants. See Jp 07-066528A. It would have been obvious to one of ordinary skill in the art at the time of invention to select from known nonionic and anionic surfactants.

Allowable Subject Matter

Claims 6 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



R. Culbert
Examiner
Art Unit 1763